

HR bundles, job performance and motivation to continue to work of older employees in different job types

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Abstract

This study investigated the effects of the HR bundles of development, maintenance, utilization and accommodative practices on the job performance and motivation to continue to work of workers with the age of 41 years and older. Furthermore, the moderating effect of job type on the relationship between HR bundles and job performance was studied. By means of a questionnaire the data was gathered within two organizations and through snow ball sampling. The results showed that the development bundle and job performance were significant related to motivation to continue to work. Also, the moderating effect of high cognitive demanding job types on the relationship between the accommodative HR practices and job performance was found significant, but negatively related. Furthermore, health turned out to be an important indicator for the job performance of older workers. Future research is needed to extent the managing and motivating older workers research area.

Keywords: *job performance, motivation to continue to work, HR bundles, job demands, job type, health, older worker*

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1. Introduction

Within 10 years there will be more people retiring than entering the labor market (CBS, 2010). Many workers assumed that they would be able to retire before or around their 65th birthday (Sterns & Miklos, 1995). However, in the Netherlands the government is debating about increasing the age of retirement. In the future workers probably need to work longer than their 65th birthday before they can retire. What are the consequences of the aging workforce for employers and the workers themselves?

It is proved that the functional abilities of people decline with age, in some cases even with 70 percent (Mital, 1994). Jobs which are designed for workers in their 30s and 40s will exceed the capabilities of workers in their 50s and 60s (Mital, 1994). Many researchers (e.g. Shirom, Shechter-Gilboa, Fried & Cooper, 2008; Sturman, 2003) have investigated the relationship between age and job performance, but the research outcomes differed concerning this relationship. Some argued that job performance changes with age. Furthermore, that job performance of workers declines with the age of 50 years and older (Skirbekk, 2003).

It can be argued that job performance is influenced by age but also by other important variables and these important variables probably caused the different research findings concerning this relationship. Sterns and Miklos (1995) found that health and functioning do not necessarily decline in middle and later working years, when Human Resource Management (HRM) interventions -such as reduced work hazard and promoting health related behaviors- are used to prevent or reduce age-related changes. Also, job complexity is an important indicator for the job performance and age relationship (Ng and Feldman, 2008; Sturman, 2003). Jobs can broadly be defined as either physical or cognitive demanding (Mital, 1994). Since the functional abilities of workers declines with age, it is very likely that older workers in high demanding jobs become at some point overwhelmed with the demands of the job (Johnson, 2004). This leads to a decrease in job productivity.

When the job performance of a worker decreases, this leads to less job satisfaction and commitment, what eventually leads to voluntary turnover (Rhodes, 1983). Job productivity or performance also directly affects organizational effectiveness (Ng, Sorensen & Yim, 2001). Organizational effectiveness is important for the organization's competitive strategy and to achieve their operational goals. It is therefore important to have a motivated workforce (Becker & Huselid, 1998). HRM can improve job performance and the motivation to continue to work by using certain Human Resource (HR) practices (Huselid, 1995). It makes sense that certain HR practices are appropriate for improving the job performance of workers. As mentioned before, such HR interventions or practices, like reduced work hazard, can be used to prevent or reduce age-related

changes. But can the same HR practices be used as well as for the high cognitive as for the high physical demanding jobs? Following from the previous discussion an interesting research question is: *What is the influence of job type on the relationship between HR practices and job performance and what is the influence of HR bundles on the motivation of older workers to continue to work?*

This research is valuable for science, since theories and models are tested on the specific group of older workers. Also, the literature about managing and motivating older workers is little, with this study the empirical evidence can be expanded. This is necessary since the group of older workers in the workforce will increase in the upcoming years. From a social point of view, this study gives employers and HR managers more insights about which HR practices leads to better job performance and more motivation to continue to work. Furthermore, this study examines which HR practices are suitable for older workers in high demanding jobs. This knowledge is important for employers and HR managers, since the workforce is one of the key dimensions for the organizations' success (Boxall & Purcell, 2008).

In the theoretical framework the different variables and their relationship with one another will be more thoroughly explained and the hypotheses and conceptual model will be presented. Next, the method of research will be described followed by the results of this study. Finally, the conclusion, discussion, limitations, theoretical and practical implications and recommendations for future research will be presented in the conclusion and discussion.

2. Theoretical framework

2.2. Defining the older worker

Age can be defined by using several different approaches, including chronological, functional, psychosocial, organizational, and the life span approach (Kooij, de Lange, Jansen & Dijkers, 2008; Sterns & Miklos, 1995). The chronological age is the age of workers in calendar years. Functional age can be defined as a performance-based definition of age and there is a variation in abilities and functioning at all ages. The psychosocial age is the social perception of age, which includes age-typing of jobs, perceptions of the workers themselves and the aging of knowledge, skills and abilities. Organizational age implies that the effect of age and tenure are related. Thus individuals age within their job and within the organization. Finally, the life span approach states that behavioral change can happen at any point in the life cycle. When people grow older there are more individual differences. These differences are a result of several factors affecting the behavioral change during the life cycle. For example, factors such as age-graded biological or environmental determinants and history-graded influences. In this study chronological age will be used to measure the age of the

workers, since it is based on calendar years and therefore better to compare with on another (Khilji & Wang, 2007; Robson, Hansson, Abalos & Booth, 2006; Ng & Feldman, 2008; Shirom et al., 2008; Sterns & Miklos, 1995).

According to the career stage model, employees' work attitudes differ across the different career stages (Conway, 2004). The first career stage consists of employees of 30 years and younger. The middle-career stage consists of employees between 31 and 40 years and the later career stage consists of employees of 41 years and older. During the first career stage the emphasis is on learning and exploration and appropriate HR practices are those related to development of skills through training. In the mid-career stage the focus is more on establishing stability and growth and HR practices should relate to career development and job security. The later career stage is focused on maintaining interest in the job, extending one's work role and seeking greater opportunities for involvement. The focus of this study is on the later career stage of the career stage model.

Furthermore, aging is associated with certain gains and losses, gains such as cognitive intellectual abilities and losses in physical abilities (Kanfer & Ackerman, 2004). Cognitive ability can be divided in fluid intelligence and crystallized abilities. Fluid intelligence is associated with the working memory, abstract reasoning and information processing. Examples of crystallized intelligence are general knowledge, extent of vocabulary and verbal comprehension (Kanfer and Ackerman, 2004). Fluid intelligence declines when age increases (Beier & Beal, in press; Kanfer & Ackerman, 2004). In this study fluid intelligence is measured, since the primarily focus of this study is on losses concerned with the aging of workers.

To conclude, the older worker is defined as a worker with the age of 41 years and older, in line with the later career stage of the career stage model (Conway, 2004). In the following paragraphs the relationships between HR practices, job performance, motivation to continue to work, and job types will be described.

2.3. *HR practices and job performance*

The goal of HRM is to design and implement HR practices which leads to desired worker attitudes and behaviour what contributes to organizational effectiveness (Nishii, Lepak & Schneider, 2008). HRM systems of practices, also called HR bundles, consist of multiple HR practices (Delery, 1998; Guest, Conway & Dewe, 2004; Huselid, 1995; MacDuffie, 1995; Subramony, 2009). There are different relationships between the practices within a system or bundle (Delery, 1998). The relationship between the practices determines the outcome of the bundle. The relationships

between the practices can be additive, substitutable, positive synergistic or have a negative synergistic effect.

A relationship is additive when the combination of two or more practices produce an added and non-overlapping outcome. A substitutable relationship means that two practices lead to the same outcome, and can substitute for one another. A relationship between practices has a positive synergistic effect when the outcome of the bundle is greater than the sum of the effects from the practices individually. The relationship between practices has a negative synergistic effect when the practices work against one another, the sum of the effects of the practices individually will be greater than the outcome of the bundle. Expected is that the bundles in this study would have a combined positive synergistic outcome for older workers, since the practices in the bundles, as found by Kooij (2010), are suitable for different age groups of workers. Also, the career stage model, as mentioned before, implied that the importance of HR practices differ across the career stages of workers (Conway, 2004). This means that for older workers different HR practices are needed to improve or maintain their level of functioning compared to younger workers.

The following bundles would be appropriate for older workers, the bundles of development, maintenance, utilization and accommodative HR practices (Kooij, 2010). The development bundle is aimed at the development, in the sense of advancement, growth and accomplishment, of individual workers and helps to achieve higher levels of functioning. Examples of development HR practices are career planning and on-the-job and training. The bundle of maintenance practices is focused on maintaining the current level or returning to a previous level of functioning after a loss. Examples of maintenance HR practices are health checks and performance appraisal. The utilization bundle is aimed at helping an employee returning to a previous level of functioning after a loss through utilizing the skills and knowledge of the employee. Examples of utilization practices are job redesign and a mentoring role. A fourth bundle of HR practices is the accommodative bundle, which focuses on lowering the work demands of the job and by helping workers function adequately at lower levels. Examples of HR practices are additional leave and adjusted work planning.

The Ability-Motivation-Opportunity (AMO) theory can be used to explain the relationship between the bundles of practices and job performance. This theory implies that HR practices and policies can be used to influence the individual's ability, motivation and opportunity to perform, which leads to an improvement of an individuals' job performance outcome (Boxall & Purcell, 2008). The ability to perform is present when workers can do the job, because they have the necessary knowledge and skills. The motivation to perform is there when employees feel appreciated and are incentivized. The opportunity to perform is present when the work structure and environment provides the necessary support and possibilities to perform (Boxall & Purcell, 2008).

The relationship between the bundle of development practices and job performance strengthens when age increases (Kooij et al., n.d.). Development practices are important for the performance of older workers, since these practices ensure that the workers are up-to-date about changes and developments in the knowledge necessary for their job. It gives them a better ability to perform. Furthermore, it is important for older workers to reinvest in themselves to avoid obsolescence of knowledge (Armstrong-Stassen & Ursel, 2009; Mital, 1994).

Kooij et al. (n.d.) also found a positive association between the maintenance bundle and job performance. This bundle and the utilization bundle are focused on maintaining or returning to a previous level of functioning after a loss, what gives workers a better opportunity to perform. Many older employees experience the age-related changes in health and physical functioning, such changes can result in reduced productivity (Hansson, Robson & Limas, 2001). Therefore, in this research is expected that the maintenance and utilization bundle of HR practices have a positive relationship with the job performance of older workers.

The accommodative bundle is aimed at lowering the work demands for workers (Kooij, 2010). This is appropriate in the sense that age is associated with certain losses, like physical abilities, and also the accommodative practices gives the workers a better opportunity to perform (Kanfer & Ackerman, 2004). Expected is that the accommodative bundle also has a positive relationship with the job performance of older workers.

This leads to the following hypothesis:

Hypothesis 1. *The bundles of – development, maintenance, utilization and accommodative – HR practices have a positive effect on the job performance of older workers.*

2.4. HR practices and motivation to continue to work

The motivation to continue to work can be defined as the desire or intentions of an older worker to continue to work (Kooij, 2010). The relationship between HR practices and motivation to continue to work can be explained by the Social Exchange Theory (SET) (Haslam, 2004). This theory implies that all human beings are sensitive to the costs and benefits of a particular action. For employees to stay within their organization they need to feel recognized and appreciated. The organization can use HR practices to signal to employees that they are appreciated and recognized. Earlier research findings (Armstrong-Stassen & Ursel, 2009) indicate that older workers who feel their contribution is being valued by their organization are more motivated to continue to work. Becker and Huselid (1998) showed that HR practices have a direct influence on the motivation of workers. Furthermore, the

happier employees are with HR practices the lower the turnover intentions among those employees (Khilji & Wang, 2007).

The bundles of accommodative, utilization and development HR practices have a positive relationship with the motivation to continue to work for older employees (Kooij, 2010). The bundle of development practices is important for retaining older employees due to the positive effect of the practices. This, as a result of feeling appreciated and recognized. Issues of skill or knowledge obsolescence and training are important issues for older workers. Providing access to training is a signal from the organization that it values the older workers' contribution to the organization (Armstrong-Stassen & Ursel, 2009). Also, the bundle of utilization practices, aimed at helping individual workers to return to the previous level of functioning after a loss, signals to the workers that they are appreciated by the organization, what is an important reason to continue to work (Kooij, 2010). The accommodative practices helps workers to function at lower levels, when maintenance or recovery is not longer possible. This also indicates that the contribution of these workers is important for the organization. Furthermore, accommodative practices contribute to a good health, what is an important prerequisite for older employees to be motivated to continue to work. Since poor health is negatively related to motivation to continue to work (Kooij, 2010).

Although expected, in former research (Kooij, 2010) the maintenance bundle of HR practices had no influence on older workers' motivation to continue to work. Kooij (2010) gives as a possible explanation that older workers might view these practices as self-evident. In this study is expected that the maintenance bundle of HR practices will have a positive effect on the motivation to continue to work. Since the maintenance practices, aimed at maintaining a current level of performance or in the face of new challenges, also signals to workers that they are recognized and appreciated by the organization.

The following hypothesis is formulated:

Hypothesis 2. *The bundles of – development, maintenance, utilization and accommodative – HR practices have a positive effect on the motivation of older workers to continue to work.*

2.5. Job performance and motivation to continue to work

Motivation to continue to work can be compared with retention and a form of retention is turnover intentions of workers (Mak & Sockel, 2001). When workers have a low job satisfaction this might result in higher turnover intentions and thus negatively influence the motivation to continue to work.

The relationship between job performance and retention can be explained through the job performance and job satisfaction relationship (Christen, Iyer & Soberman, 2006; Judge, Thoresen, Bono & Patton, 2001; Petty, McGee & Cavender, 1984). The job performance and job satisfaction relationship implies that performance leads to valued outcomes which are satisfying to individuals, and which leads to satisfaction with their job (Judge et al., 2001). When workers experience satisfaction with their job this leads to more motivation to continue to work.

Former research findings indicates that high performing workers are more likely to stay within their function compared to low performing workers (Hausknecht, Rodda & Howard, 2009). An important reason for these high performing workers to remain within their organization was satisfaction with their job. This satisfaction was for a great part determined by valued job performance outcomes. Furthermore, dissatisfaction with work was found to be an important predictor for turnover (Lee, Gehart, Welle & Trevor, 2008; Wright & Bonett, 2007). Ng and Feldman (2008) also found a positive association between job performance and motivation to continue to work. Furthermore, Shirom et al. (2008) discovered in their research when age increases workers tend to obtain higher coping resources which gives them benefits to perform well.

Older workers might have to deal with certain losses, like a decline in physical abilities, what makes it more difficult to keep functioning at a certain performance level (Johnson, 2004). On the other hand, older workers tend to have higher coping resources what helps them to perform better (Shirom et al., 2008). So, it is interesting to find out what the relationship is between job performance and motivation to continue to work for the older workers in this study.

Expected is the following hypothesis:

Hypothesis 3. *Job performance has a positive effect on the motivation of older workers to continue to work.*

2.6. HR practices and job performance: moderated by job type

Older workers have the capacity to manage and cope with the stress of the job and the environmental demands, but some workers become overwhelmed, for example with job demands, and find themselves at an increased risk for health consequences, injury, disability and reduced productivity (Hansson et al., 2001). Older employees who work in high physical demanding jobs suffer more from health problems compared with older employees in less physical demanding jobs (Johnson, 2004). Other researchers (e.g. Jones, Chonko, Rangarajan & Roberts, 2007) also found that the demands of the job have an effect on the job performance. Jobs can broadly be defined as either

physical or cognitive demanding (Mital, 1994). In this study job type is also divided into cognitive and physical demanding jobs.

When an older worker is overwhelmed by the physical or cognitive demands of the job this will lead to a decrease in job performance (Bakker, Demerouti & Verbeke, 2004; Rhodes, 1983). Kanfer and Ackerman (2004) declared that ageing is associated with gains and losses. There is a variation among individuals, but physical capability may start to decline in middle age (Beier & Beal, in press; Hansson et al., 2001; Sterns & Miklos, 1995). Also, the fluid intelligence of employees declines when age increases. When an older workers experiences high fluid intelligence demands during work this would lead to a decrease in job performance (Beier & Beal, in press; Kanfer & Ackerman, 2004).

The Job Demands-Resources (JD-R) model can be used to explain the relationship between job characteristics, like job demands, and performance (Bakker et al., 2004). Job demands are physical, psychological, social or organizational aspects of the job that require sustained physical and/or psychological effort and are therefore associated with certain physical and/or psychological costs. Examples of job demands are high work pressure, role overload, emotional demands and poor environmental conditions. Job resources are those physical, psychological, social or organizational aspects of the job that reduces job demands and the associated costs. Examples of job resources are career opportunities, job security, skill variety and autonomy (Bakker et al., 2004). Job resources, like HR practices, can reduce the impact of the job demands on job performance. Hulsker (2006) discovered that HR practices have a positive influence on the relationship between job demands and job performance, what can be explained through the buffer function (Bakker et al., 2004). According to the buffer function the job resources buffer the impact of the job demands on the performance outcome. In other words, when the job demands are high, the HR practices can buffer the impact of the demands, so the high demands of the job do not have a negative influence on the job performance.

Taking the above research findings into account it turns out that cognitive - fluid intelligence - abilities declines with age, what negatively affects the job performance (Beier & Beal, in press; Kanfer & Ackerman, 2004; Skirbekk, 2003). As well for older workers who experience high physical demands during work, this would lead to a decline in job performance (Bakker et al., 2004; Jones et al., 2007; Skirbekk, 2003). For older workers with high cognitive or physical demanding jobs, the bundles of maintenance, utilization, and accommodative HR practices should be appropriate for handling the demands of the job (Kooij, 2010).

Maintenance practices can be used to help older workers to function at their current performance level. The maintenance practices can be used to increase the job resources. When the

demands of the job are high the maintenance practices can buffer the effects of the high demands on the job performance of older workers. Workers in high physical or cognitive demanding jobs need maintenance practices to keep functioning at their current performance level, what makes the relationship between maintenance practices and job performance stronger. The utilization HR practices are aimed at changing the job demands and thereby helping older workers to return to a previous level of functioning after a loss. When the demands of the job are high, these practices help older workers to utilize their already existing skills and knowledge to perform at a previous level of functioning. The high job demands are replaced with other job demands what helps the older workers to perform well and makes the relationship between utilization practices and job performance stronger for workers in high demanding jobs. Accommodative practices helps older workers by reducing the job demands. When the demands of the job are high, these practices help older workers to perform well at lower levels of functioning. When older workers cannot handle the high physical or cognitive demands of their job, the accommodative practices reduces these demands what has a positive influence on the job performance of these workers. Furthermore, work that is redesigned to accommodate the needs of older workers has important health benefits for the workers (Moyers & Coleman, 2004). Since a good health is important to perform well for older employees (Sterns & Miklos, 1995).

The bundle of development practices are not appropriate for older workers who experience high physical or cognitive demands in their job, since the development practices are aimed at improving the skills or knowledge necessary for the job (Kooij, 2010). These workers probably have the skills and knowledge they need to do their job well, however the high demands makes it a problem to perform well. It makes more sense to help these workers to handle the high physical or cognitive job demands by using HR practices aimed at maintaining, accommodating and utilizing. Therefore, it is expected that the development practices will have a negative relationship with job performance when the cognitive or physical demands of the job are high.

The following hypotheses are formulated:

Hypothesis 4.a. *The relationship between the maintenance, utilization and accommodative bundles of HR practices and job performance will be more positive for older workers with high cognitive demanding jobs compared to older workers with lower cognitive demanding jobs.*

Hypothesis 4.b. *The relationship between maintenance, accommodative and utilization bundle of HR practices and job performance will be more positive for older workers with high*

physical demanding compared to older workers with lower physical demanding jobs.

Hypothesis 4.c. *The relationship between the development bundle of HR practices and job performance will be more negative for older workers with high cognitive or physical demanding jobs compared with older workers with lower cognitive or physical demanding jobs.*

2.7. HR practices and motivation to continue to work: mediated by job performance

As described before, the bundles of HR practices can be used to influence the job performance of older workers and job performance is expected to have a positive relationship with motivation to continue to work. Expected can be that job performance mediates the effect of HR bundles on motivation to continue to work.

The job performance and job satisfaction relationship, as mentioned before, can be used to explain the relationship between HR bundles and motivation, mediated by job performance (Christen et al., 2006; Judge et al., 2001; Petty et al., 1984). A positive effect of job performance on job satisfaction has important implications for an organization that wants to retain employees. It implies that actions, like HR practices and policies, to increase job performance can also increase a workers' job satisfaction and result in reduced turnover intentions (Christen et al., 2006). Older workers have to deal with losses concerned with aging, what might negatively influence their job performance (e.g. Hansson et al., 2001).

The bundles of maintenance, utilization and accommodative HR practices can be used to deal with the losses, like a decline in physical abilities, and thereby improving the individual performance outcome (Kooij et al., n.d.). The development bundle is important for older workers who want to develop themselves and want to avoid obsolescence of knowledge, which also leads to a better job performance. According to the job performance and satisfaction relationship, when these bundles positively influence the job performance of older workers, this probably also leads to more motivation to continue to work (Christen et al., 2006).

Expected is the following hypothesis:

Hypothesis 5. *Job performance mediates the effect of the –development, maintenance, utilization and accommodative- bundles of HR practices on older workers' motivation to continue to work.*

The expected relationships between the variables are presented in the following conceptual framework. In method the research design, sample statistics, instruments, and the statistical analyses of this study will be described.

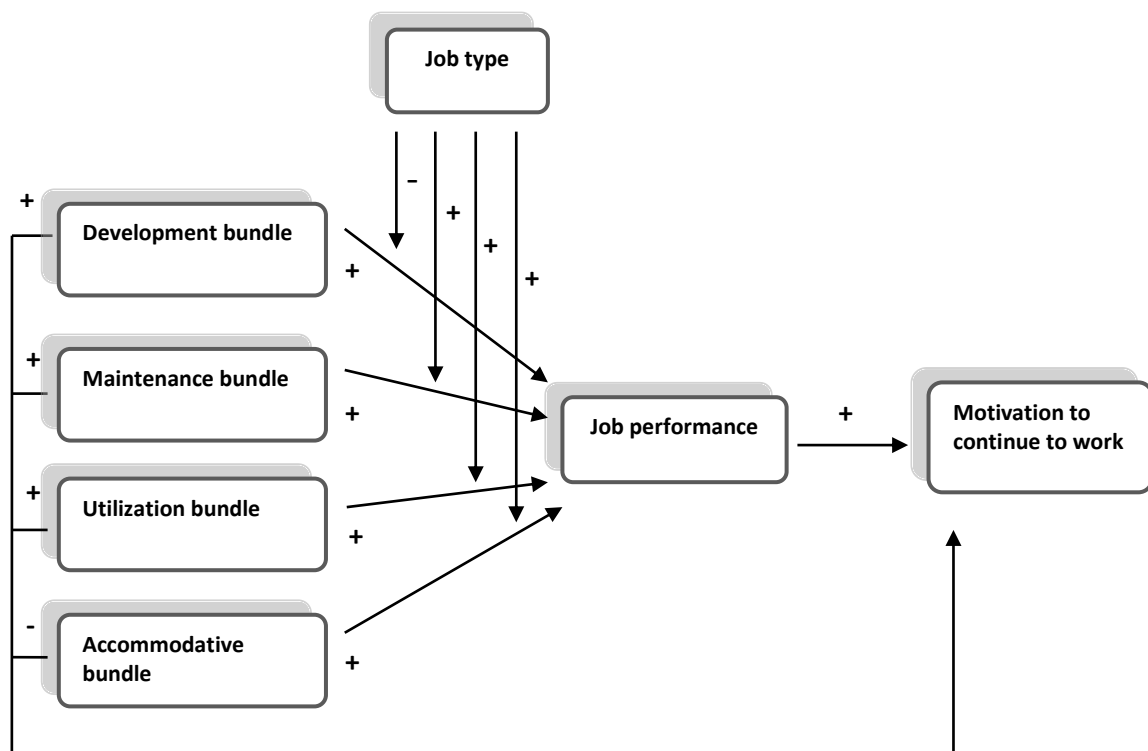


Figure 1. Conceptual framework

3. Method

3.2. Research design and procedure

This study aimed to investigate the relationships between HR bundles and job performance moderated by job type, and the influence on the motivation to continue to work for employees with the age of 41 years and older. Also, the mediating effect of job performance in the relationship between the HR bundles and motivation to continue to work was studied. An explanatory research design was used to test the stated hypotheses. The data was gathered by means of a questionnaire and was placed on a website. The respondents received an email with a letter and the link of the website and had four weeks the time to fill in the questionnaire (see appendix B). During these four weeks the respondents received two reminders to fill in the questionnaire.

3.3. Sample

The data was collected in collaboration with two other student researchers in the research area of managing and motivating older employees. Since this study focused only on respondents with the age of 41 years and older, only a part of the collected data was suitable for this study. The data was collected in two organizations. For the selection of organizations for the sample a few criteria were used. First, the organization needed to have workers employed with the age of 41 years and older, and an amount of the jobs within the organization had to be cognitive or physical high demanding. Examples of cognitive high demanding jobs were, managers and teachers (Avolio, & Waldman, 1990; Kanfer and Ackerman, 2004) Examples of physical high demanding jobs were, construction workers, production workers, and nurses (Amstrong-Stassen & Ursel, 2009; van der Molen et al., 2004).

One of the organizations was a consultancy firm within the Netherlands with 185 employees. This firm was concerned with spatial planning and had many different functions within the organization, from consultants to property developer. The number of respondents with the age of 41 years and older and therefore suitable for this study was 18, the overall response rate was 36,8%.

The second organization was a large educational institution for pre-vocational (VMBO) and vocational (MBO) green education, with different education locations spread out through the Netherlands. All employees, from teachers to janitors, were approached to fill in the questionnaire. The number of respondents suitable for this study was 78, the overall response rate was 22.8%. Despite the effort only these two organizations were willing to collaborate, therefore also snowball sampling was used to collect data. The number of respondents from snowball sampling was 40, from these respondents 27 were used in this study.

The sample statistics are presented in table 1. In the end 123 respondents were suitable for this study. The mean age of the respondents was 52 years. The sample consisted out of 84 males and 39 females. The functions of the respondents are categorized in levels based on level and requirements of skills, rated from 1 to 9 (CBS, 2001). An example of a function in level 2 was janitor and an example of a function in level 9 was managing director. The mean function level of the respondents was 5. The respondents worked in the following branches; education ($N= 79$), business services ($N= 18$) and remaining branch types ($N= 26$). Of all the respondents, 25 worked in a small organization, 66 in an average organization and 32 respondents in a large organization. The mean tenure was 17 years and the mean rating for the health of the respondents was 7.6.

Table 1. Sample statistics

	Mean	SD	Frequency	Percentage
Age (in years)	53	5.6		
Gender				
Male			84	68%
Female			39	32%
Health (1= bad health; 10= excellent health)	7.6	1.4		
Tenure (in years)	17	11.1		
Function level	5	0.17		
Type of organization				
Small organization (0-50 employees)			25	20.3%
Average organization (51-250 employees)			66	53.7%
Large organization (> 250 employees)			32	26%
Branch				
Education			79	64%
Business services			18	15%
Remaining			26	21%

3.4. Measures

HR bundles of practices

The bundles of HR practices were measured with a 24-items scale, developed by Kooij (2010). Some of the items in the scale of Kooij (2010) were replaced by items of the scale of Boon (2008), because some items of the scale of Kooij did not correctly reflect the actual meaning of the HR practice.

The bundle of development practices consisted out of four items ($\alpha= 0.913$), a question was 'My organization offers me the opportunity to follow courses and training on a regular basis (at least once a year)'. The bundle of maintenance practices consisted out of seven items ($\alpha= 0.718$), an example of a question was 'My organization offers me adapted working conditions (for example an adapted workplace)'. The bundle of accommodative practices consisted out of eight items

($\alpha = 0.761$), an example of a question was *'My organization offers me the opportunity to work at a lower level within the organization (demotion)'*. The bundle of utilization practices consisted out of five items ($\alpha = 0.832$), a question was *'My organization offers me the opportunity to decrease the overloaded tasks within my function'*. The yes/no answer scale used in the study of Kooij (2010) was a limitation of that study, so decided was to use the five-point response scale used in the study of Boon (2008). The respondents were asked to rate to what extent their organization offers a certain HR practices on a five-point response scale (1= not at all; 5= to a great extent). Appendix A shows which practices formed which bundle.

Job type

Job type was divided into cognitive and physical demanding jobs, so this variable was measured with two different scales from the VBBA questionnaire developed by van Veldhoven, Meijman, Broersen and Fortuin (2002). The scale 'mental load' was used to measure cognitive, fluid intelligence, demands and consisted out of 7-items ($\alpha = 0.890$). An example of a question was: *'Does your work demand a lot of concentration?'* The scale of physical effort was used to measure the physical demands of the job and consisted out of 8 items ($\alpha = 0.926$). An example of a question was: *'Does your work require physical strength?'* Each item had a four-point based response scale (1= never; 4= always).

Job performance

To measure job performance the scale 'job performance' was used, developed by Petit and Vaught (1997) and consisted out of 3 items ($\alpha = 0.824$). The respondents were asked to indicate on a five-point rating scale their performance (1= below the average; 5= one of the best). An example of a question was: *'How would you rate your current performance?'*

Motivation to continue to work

Motivation to continue to work was measured with the scale 'intention to remain'. The scale was developed by Armstrong-Stassen and Ursel (2009) and consists out of 3 items ($\alpha = 0.929$). An example of a question was: *'I expect to continue working as long as possible in this organization'*. Each item had a five-point based response scale (1= strongly disagree; 5= strongly agree).

3.5. Control variables

The control variables included age, measured as a continuous variable and gender (1= male, 0= female) (van Veldhoven et al., 2002). Furthermore, type of branch and size of organization were

included as control variables. The size of organization was measured in total number of employees. Also, the variable health, the question to rate the health of the respondents was: '*which grade should you give yourself to rate your health?*' (rated from 1 to 10, 10 meaning excellent health). Finally, function level, the respondents had to fill in their job title, based on this the function level was determined according to the standard job classification (CBS, 2001).

3.6. Preliminary data analysis

Before analyzing the data, some assumptions were checked (Pallant, 2007). First of all, the scores on each variable were checked whether these were normally distributed. The normality test of Kolmogorov-Smirnov suggests that the assumption of normality was violated, because all the main variables, the different HR bundles, job performance and motivation, showed a significant result on the test. However, the normal Q-Q plots showed a straight line, so a normal distribution of values was assumed. Secondly, the presence of outliers for each variable was checked with box plots. Some of the variables contained one or a few outliers, but were not removed since it was a small amount of the data.

Thirdly, the assumptions of homoscedasticity and the linearity were checked. The nine scatter plots which were conducted showed that a straight line can be drawn through the cluster of point, what assumes linearity. The values around that line remained constant for all the values of X, which assumes homoscedasticity (Keith, 2006). Finally, the Tolerance and VIF were checked for the presence of multicollinearity among the independent variables (Pallant, 2007). Multicollinearity is present when the tolerance is less than .100 and when the VIF is greater than 10 (Pallant, 2007). The lowest value of tolerance was 0.293 and the values of VIF were not higher than 3.418, this means there was no multicollinearity between the independent variables.

3.7. Principal Components analysis

Since the bundles of practices in former research (e.g. Kooij, 2010, Kooij et al., n.d.) did not always consist out of the same practices, a principal components analysis was conducted to find out whether the practices formed the predicted bundles. The outcome of the analysis showed the existence of six bundles instead of four (see appendix C). Even when the practices were forced into five or four factors, the outcome was still not comparable with the predicted bundles of practices. Since the practices were blended over the six, five or four bundles and did not form bundles of practices comparable with the predicted bundled, it was decided to use the bundles as formulated in the theoretical framework.

3.8. Data analysis

For the statistical analysis the program SPSS was used. First, the reliability of the scales was checked with the Cronbach's alpha (Pallant, 2007). For the moderating effect of job type on the relationship between HR bundles of practices and job performance, the respondents were divided in two groups of job types these were; cognitive demands and physical demanding job types. The median was used instead of the mean scores to differentiate between low and high demands, since the mean scores on the scales caused an unequal division of respondents. The median of the scale 'mental load' was 3.1, the scores 0 through 3.1 formed the low cognitive demands group and the scores from 3.2 till 4, the high cognitive demands group. The median of the scale 'physical effort' was 1.5, the scores 0 till 1.5 formed the low physical demands group and the scores 1.51 till 4 the high physical demands group. For testing the moderating effect a regression analysis was conducted with an interaction effect of each HR bundle and job type, this in order to test whether the interaction effect explains more variance in the relationship.

For testing the mediating effect of job performance in the relationship between the HR bundles and motivation to continue to work the analytic approach of Baron and Kenny (1986) was used. The analytic approach contains several regression models. The first regression tests the effect of the mediator on the independent variable. The second regression measures the effect of the dependent variable on the independent variable. The third regression tests the dependent variable on both the independent and mediating variable. After the regression was completed, the regression models were checked according to the four conditions of Baron and Kenny (1986):

- The independent variable must affect the mediator in the first equation
- The independent variable must be shown to affect the dependent variable in the second regression
- The mediator must affect the dependent variable in the third equation
- If all the three conditions mentioned before are met, then the effect of the independent variable must be less in the third equation than in the second.

When all the conditions are met the mediating effect is present. Then, the Sobel-test will be used to test whether the indirect effect of the HR bundles on the motivation to continue to work through job performance is significant (Baron & Kenny, 1986).

4. Results

4.1. Correlations

In table 2 the means, standard deviations, and correlations (Pearson's r) of the main variables are presented. The correlations between development (.112) maintenance (.123), utilization (.072) accommodative (.033) and job performance were all not significant. The correlations between development (.393), maintenance (.239), utilization (.381) accommodative (.232) and motivation to continue to work were all significant. The correlation between job performance and motivation (.179) was also significant. This implies that regression analyses can be used to test the relationships between these variables. Since, only the control variables gender (.198) and health (.255) were significant correlated with the dependent variable job performance, these control variables are included in the regression analyses with job performance as dependent variable. None of the control variables were significant correlated with motivation to continue to work and therefore not taken into account in the regression analyses with motivation to continue to work as dependent variable.

Table 2. Correlation matrix

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Age	52.51	5.57													
2. Tenure	17.05	11.10	.452**												
3. Health	7.65	1.41	-.131	-.005											
4. Gender	1.32	.467	-.192*	-.332**	-.028										
5. Function level	5.03	1.88	.123	.191*	.074	.320*									
6. Development bundle	2.99	1.02	-.134	-.079	.207*	-.024	.002								
7. Maintenance bundle	2.50	.757	-.239**	-.159	.168	-.027	-.114	.605**							
8. Utilization bundle	2.64	.893	-.235**	-.083	.191*	-.059	.049	.739**	.608**						
9. Accommodative bundle	2.63	.805	-.037	-.046	.236**	-.057	-.118	.512**	.605**	.583**					
10. Job performance	2.91	.686	-.067	.037	.255**	.198*	.117	.112	.123	.072	.033				
11. Cognitive demands	3.26	.546	.118	-.002	-.018	.084	.175	-.001	-.014	-.057	-.174	.089			
12. Physical demands	1.69	.700	-.032	-.108	-.047	.005	-.143	-.104	-.080	-.254*	-.085	.077	-.142		
13. Motivation	4.09	1.068	.056	.134	.075	.046	.043	.393**	.239**	.381**	.232**	.179*	-.154	-.047	

Note: * $p < 0.05$; ** $p < 0.01$

4.2. ANOVA

Since branch and organizational type are categorical variables, these variables were tested with an ANOVA-analysis for differences between the groups of organizational type and branch for the main variables. Table 3 presents the results for type of organization. The accommodative bundle was the only variable influenced by the type of organization ($F = 7.242$; $p < .05$). However, according to the

Levene's statistic there were no differences between the categories ($p > 0.05$). A post hoc analysis with the Bonferroni procedure confirmed a significant difference between the groups of small and large organization type and between the groups of average and large type of organization for the accommodative practices ($p < 0.05$).

Table 3. ANOVA – type of organization

		Sum of squares	df	Mean square	F	Sig.	Levene statistic	Sig.
Development bundle	Between groups	2.783	2	1.392	1.346	.264	.159	.854
Maintenance bundle	Between groups	3.115	2	1.557	2.800	.065	.347	.707
Utilization bundle	Between groups	.885	2	.443	.551	.578	.431	.651
Accommodative bundle	Between groups	8.511	2	4.255	7.242	.001	.986	.376
Cognitive demands	Between groups	.855	2	.428	1.447	.239	1.068	.347
Physical demands	Between groups	1.135	2	.568	1.163	.316	1.819	.167
Job performance	Between groups	.162	2	.081	.170	.844	.066	.936
Motivation	Between groups	1.258	2	.629	.548	.580	2.045	.134

In table 4 the results for the different branches are presented. The cognitive demands ($F = 6.737$; $p < 0.01$) and physical demands ($F = 28.403$; $p < 0.01$) were influenced by the type of branch. According to the Levene's statistic also a significant difference existed between the types of branch for the development practices. A post hoc analysis was conducted with a Bonferroni procedure and revealed a significant difference between the different branches for cognitive demands and for the physical demands ($p < 0.05$) and there were no significant differences between the different branches for the development bundle. To conclude, the type of organization and branch are included as control variables in the regression analyses.

Table 4. ANOVA – branch

		Sum of squares	df	Mean square	F	Sig.	Levene statistic	Sig.
Development bundle	Between groups	.076	2	.038	.036	.965	3.546	.032
Maintenance bundle	Between groups	1.776	2	.888	1.566	.213	.128	.880
Utilization bundle	Between groups	1.650	2	.825	1.034	.359	.857	.427
Accommodative bundle	Between groups	.488	2	.244	.373	.690	.678	.510
Cognitive demands	Between groups	3.666	2	1.833	6.737	.002	4.191	.017
Physical demands	Between groups	19.181	2	9.590	28.403	.000	14.637	.000
Job performance	Between groups	.616	2	.308	.650	.524	.584	.559
Motivation	Between groups	4.684	2	2.342	2.091	.128	2.299	.105

4.3. Hierarchical multiple regression analyses

Hierarchical multiple regression analysis was conducted to test the stated hypotheses. Three regression analyses were conducted one with job performance and two regressions with motivation to continue to work as dependent variable.

Model 1 in table 5 shows that all the bundles of HR practices were not significant related to job performance. After entering the control variables in the second model, the relationships remained not significant. Furthermore, the control variables gender ($\beta = 0.182$; $p < 0.05$) and health ($\beta = 0.243$; $p < 0.05$) had a positive and significant relationship with job performance. The model explained 11,9% of variance in job performance. The non-significant outcomes rejects the first hypothesis, which stated that the bundles of development, maintenance, utilization, and accommodative HR practices have a positive effect on the job performance of older workers.

Table 5. Hierarchical multiple regression analysis – job performance

	Model 1			Model 2			Model 3		
	B	s.e.	β	B	s.e.	β	B	s.e.	β
Development bundle	.066	.095	.098	.047	.094	.070	-.026	.103	-.039
Maintenance bundle	.119	.117	.131	.110	.116	.122	.070	.124	.077
Utilization bundle	-.028	.113	-.036	-.025	.113	-.033	-.002	.120	-.002
Accommodative bundle	-.064	.104	-.075	-.091	.108	-.106	-.003	.113	-.003
Gender				.267	.134	.182*	.186	.133	.126
Health				.119	.045	.243*	.101	.045	.207*
Type of organization				.010	.095	.010	-.008	.098	-.008
D1 Branch-education				.024	.153	.017	-.217	.172	-.152
D2 Branch-business services				.094	.212	.048	-.018	.238	-.009
Cognitive demands							.398	.133	.291*
Physical demands							-.095	.139	-.069
Development*cognitive demands							-.037	.099	-.055
Maintenance*cognitive demands							.106	.089	.154
Utilization*cognitive demands							.078	.103	.113
Accommodative*cognitive demands							-.201	.087	-.289*
Development*physical demands							-.021	.106	-.030
Maintenance*physical demands							.079	.091	.115
Utilization*physical demands							.047	.110	.068
Accommodative*physical demands							-.084	.086	-.122
Intercept	2.656	.244		2.190	.467		2.271	.493	
R ²		.022			.119			.233	
ΔR^2					.097			.114	
F		.663			1.696			1.645	
F change					1.033			-.051	

Note: * $p < 0.05$; ** $p < 0.01$

Model 3 in table 5 presents the results of the moderating effect of job type on the relationship

between the HR bundles and job performance. This model explains 23.3% variance in job performance. The interaction of the accommodative bundle and cognitive demands was negative and significant related to job performance ($\beta = -0.289$; $p < 0.05$). This means that the relationship between accommodative practices and job performance declines when the cognitive demands of the job are high. Furthermore, the control variable health ($\beta = 0.207$; $p < 0.05$) and the cognitive demands ($\beta = 0.291$; $p < 0.05$) were positive and significant related to job performance. The outcomes reject hypotheses 4.a and 4.b, which stated that the relationship between the maintenance, utilization and accommodative bundle and job performance is more positive for older workers in high cognitive or physical demanding jobs compared with older workers in lower cognitive or physical demanding jobs. Also, hypothesis 4.c is rejected, which stated that the relationship between the development bundle and job performance is more negative for older workers in high cognitive or physical demanding jobs compared with older workers in lower cognitive or physical demanding jobs.

Table 6 presents the regression of the bundles of HR practices on motivation to continue to work. The first model shows that the development bundle turned out to be positive and significant related to motivation to continue to work ($\beta = 0.264$; $p < 0.05$). In the second model, the relationship remains positive and significant after controlling for the control variables and cognitive and physical demands ($\beta = 0.299$; $p < 0.05$). The second model explains 3% more variance in motivation to continue to work. The second hypothesis, which stated that the bundles of -development, maintenance, utilization and accommodative HR practices have a positive effect on the motivation of older workers to continue to work, is partly confirmed.

Table 6. Multiple regression analysis – motivation to continue to work

	Model 1			Model 2		
	B	s.e.	β	B	s.e.	β
Development bundle	.276	.136	.264*	.313	.137	.299*
Maintenance bundle	-.078	.167	-.055	-.148	.170	-.105
Utilization bundle	.260	.161	.217	.200	.165	.167
Accommodative bundle	.005	.148	.004	.082	.156	.062
Type of organization				-.046	.137	-.030
D1 Branch-ecducation				-.097	.224	-.044
D2 Branch-business services				.447	.309	.149
Intercept	2.758	.349		2.873	.449	
R ²		.174			.204	
ΔR^2					.03	
F		6.228**			4.200**	
F change					-2.028	

Note: * $p < 0.05$; ** $p < 0.01$

Table 7 presents the results for the regression of job performance on motivation to continue to work. The first model presents the outcome without the control variables whereas the second model presents the results controlled for control variables and cognitive and physical demands. The second model explains 4.7% of variance in motivation to continue to work. Job performance turned out to be positive and significant related to motivation to continue to work ($\beta = 0.196$; $p < 0.05$). This confirms the third hypothesis, which stated that job performance has a positive effect on the motivation of older workers to continue to work.

Table 7. Multiple regression analysis – motivation to continue to work

	Model 1			Model 2		
	B	s.e.	β	B	s.e.	β
Job performance	.279	.139	.179*	.305	.146	.196*
Cognitive demands				-.301	.206	-.141
Physical demands				-.105	.212	-.049
D1 Branch-education				-.001	.265	.000
D2 Branch-business services				.436	.358	.145
Intercept	3.278	.416		3.350	.514	
R ²		.032			.079	
ΔR^2					.047	
F		4.014*			2.003	
F change					-2.011	

Note: * $p < 0.05$; ** $p < 0.01$

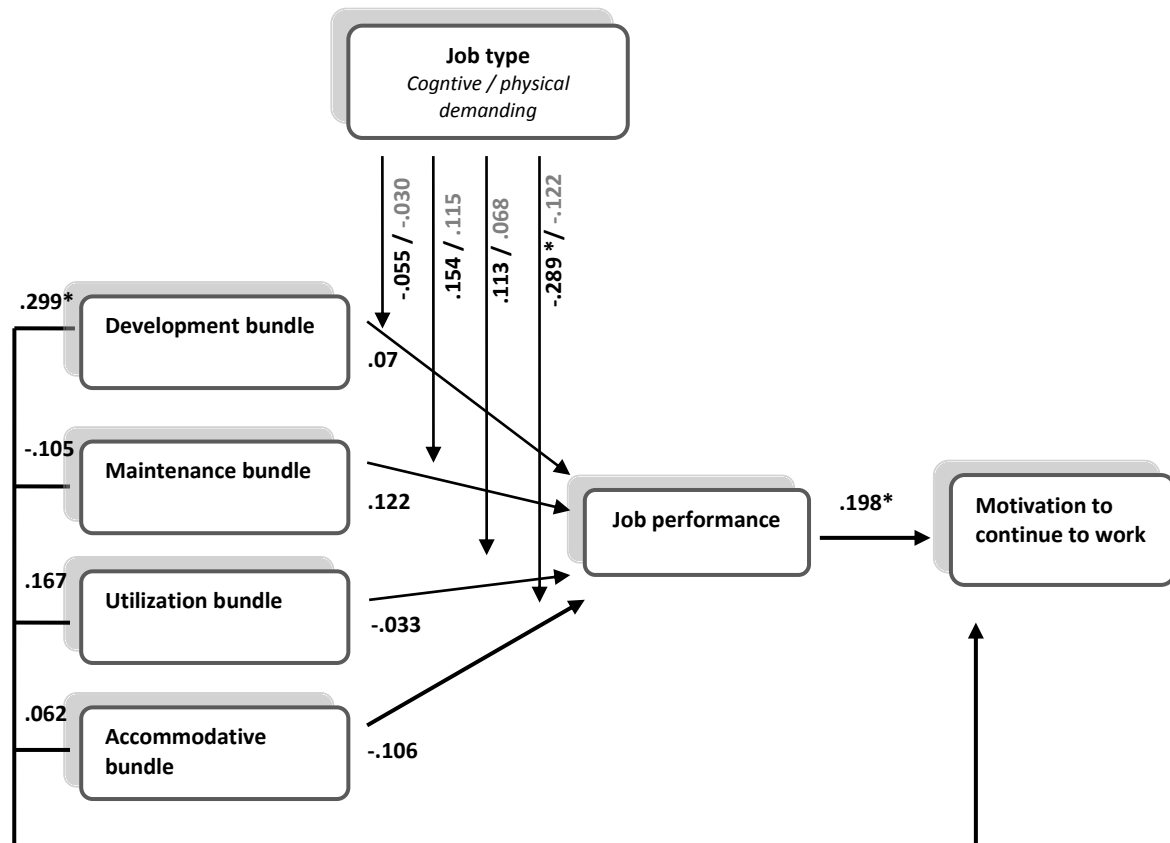
After conducting the different regression analyses, it turned out that not every condition of Baron and Kenny (1986) was met for the mediating effect:

- The HR bundles were not significant related to job performance (see table 5).
- Only the development bundle of practices was significant related to motivation to continue to work (see table 6).
- Job performance was significant related to motivation to continue to work (see table 7).
- Not all three conditions above are met, so the fourth condition cannot be applied.

This rejects hypothesis 5, which stated that job performance mediates the relationship between the HR bundles and motivation to continue to work.

4.4. Summary of findings

Figure 2 represents the conceptual framework from the theoretical framework. This figure gives an overview of the results of this study. To show both the outcomes of cognitive and physical demanding job types as moderating variable, the beta's for the physical demanding job types are marked in grey.



Note: * $p < 0.05$

Figure 2. Conceptual framework with beta coefficients

Figure 2 shows that only the development bundle was positive and significant related to motivation to continue to work (Hypothesis 2). Also, job performance was positive and significant related to motivation to continue to work (Hypothesis 3). The relationship between HR bundles and motivation to continue to work mediated by job performance turned out to be not significant. This also applies for the moderating effect of physical demanding job types on the relationship between HR bundles and job performance. For the moderating effect of cognitive demanding jobs, only the cognitive demanding job types on the relationship between the accommodative HR bundle and job performance was significant, but showed a negative effect. Hypothesis 3 was confirmed, hypothesis 2 was partly confirmed and hypothesis, 1, 4a, b, c and 5 were not confirmed. In the conclusion and discussion the outcomes of this study will be further discussed.

5. Conclusion and Discussion

This study investigated the effect of bundles of HR practices on job performance and motivation to continue to work of workers older than 40 years and the moderating effect of job type. Furthermore, the mediating effect of job performance in the relationship between the bundles of HR practices and motivation to continue to work was studied. The research question of this study was: *What is the influence of job type on the relationship between HR practices and job performance and what is the influence of HR bundles on the motivation of older workers to continue to work?*

The AMO-theory was used to explain the relationship between the HR bundles and job performance. It explained that the individual performance is the function of the individuals' ability, motivation, and opportunity to perform. However, the AMO-theory was never before specified to the group of workers with the age of 41 years and older. It might be that aging itself affects the ability to perform as found by Rhodes (1983). Rhodes (1983) argued that aging affects the skills necessary to do the job. For example, aging affects the process of translation between perception and action, hearing, and vision. As mentioned in the theoretical framework, the ability to perform depends on the skills necessary to do the job. The perceived availability of HR practices might be not enough to overcome the fact that with aging, the ability to perform declines (Hansson et al., 2007). When the ability is not present in the AMO performance equation this has a negative influence on the performance (Boxall & Purcell, 2008). Moreover, the AMO-theory proposed that HR practices focused on workers' interest, like skill requirement, motivation, and the quality of their job leads to better job performance (Boselie, Dietz & Boon, 2005; Boxall & Purcell, 2008). In this study were other HR practices used, what might be an explanation for the non significant results between the HR bundles and job performance.

Another explanation for the non-significant results of the development, maintenance, utilization and accommodative bundles of practices in relation with job performance, might be that these bundles did not have the combined positive synergistic effect. The combined synergistic effect of practices bundled together is only stronger than the effect of the individual practices when the bundles consist out of the right practices (Delery, 1998; Subramony, 2009). The effectiveness of any practices depends on the other practices in the bundle. If all the practices fit into the bundle, the effect of the bundle on performance is greater than the sum of the individual effect from each practice individually (Delery, 1998). It is possible that the practices in the bundles are not the right ones to support one another in creating certain, developing, maintaining, utilization, or accommodating effects for older workers and thereby having an effect on their job performance.

Therefore, a principal component analysis was conducted to test whether the practices formed the predicted bundles. The outcome of this analysis showed that the bundles of practices were not comparable to the predicted bundles in the theoretical framework, so it is possible that the predicted bundles do not consist of the right practices to create a combined synergistic effect on job performance for older workers. However, the size of the sample was questionable for conducting a principal components analysis. Pallant (2007) argued that the size of the sample should be at least 150 respondents and this study consisted out of 123 respondents.

The control variable health was found to have a positive and significant relationship with job performance. Health is an important indicator of job performance, since employees who suffer from health problems will be unable to perform well (Johnson, 2004; Jones et al., 2007; Sterns & Miklos, 1995). Therefore, a post hoc analysis was conducted with health as moderator in the relationship between HR practices and job performance (see Appendix D). The outcome of this analysis showed that health only moderated the relationship negative and significant between the development practices and job performance. This implies that when health decreases, older workers need more development practices to perform well. This is an unexpected finding, since it was expected that older workers need to have maintenance, utilization and accommodative practices, to overcome the losses concerned with aging, to perform well. A possible explanation for this finding is that older workers with a declining health might believe that they have to develop themselves. So they are able to perform another job or tasks with lower cognitive or physical demands, what will leads to a better job performance.

Furthermore, the control variable gender had a significant relationship with job performance. A T-test showed that there was a significant difference in the mean scores for job performance between males and females. It indicates that the job performance of males was higher compared to the job performance of females. Since 84 males and only 39 females were present in the sample, it is possible when more women were present in the sample the relationship between the HR bundles and job performance had been significant. Given that the job performance of females was lower, they might need the perceived availability of HR practices more than males to perform well.

Another explanation for the non-significant outcomes is that the HR practices were measured in terms of perceived availability. The perceived availability of practices does not say anything about the implementation of the practices (Guest & Conway, 2002). Due to the snowball sampling method, the sample consisted out of many different organizations. This means that it is very hard to say anything about the HR practices, since it is not known why organization offer certain HR practices or not and about the implementation of the HR practices. This is important, since the

implementation of a practice is determinant for the effectiveness of the practice (Boselie et al., 2005).

Moreover, the scale which measured job performance focused only on task performance. According to Ng and Feldman (2008) job performance consists of ten dimensions. Which are, task performance, performance in training programs, organizational citizenship behaviours, safety performance, general counterproductive work behaviours, workplace aggression, on the job substance use, tardiness and absenteeism. Ng and Feldman (2008) argued that older workers are as motivated as younger workers to contribute to their organization but due to losses in technical core performance they engage more in discretionary behavior to compensate for their losses. When all ten dimensions of job performance were taken into account in this study, it might be that more relationships with job performance had been significant.

The relationship between the development bundle and motivation to continue to work was found positive and significant. Kooij (2010) also found in her study that HR practices aimed at developing older workers lead to a higher motivation to continue to work. As well the SET can be used to explain the positive relationship of development practices and intentions to remain (Haslam, 2004). The development practices signal to the older workers that they are recognized and appreciated, in exchange the workers want to stay within the organization.

An explanation for the non-significant relationship between the bundles of maintenance, utilization, and accommodative practices and motivation to continue to work might be that the respondents rated their health with a 7.6. Since these respondents have a good health, it might be that they are more interested in developing themselves within their function or within the organization and do not need maintenance, accommodative or utilization practices. Also, Armstrong-Stassen and Ursel (2009) found in their study that for the retention of older workers opportunities to upgrade their skills and acquiring new skills is important. Since it ensures the older workers that they have interesting and challenging work assignments. Moreover, organizational and technical changes lead to changes in knowledge, abilities and skills required for a job. For older employees to stay up-to-date and to avoid obsolescence of skills, abilities, and knowledge they need develop practices to develop themselves (Finegold, Mohrman & Spreitzer, 2002; Sterns & Miklos., 1995).

Furthermore, it is questionably how important HR practices or bundles are for the motivation of older workers to continue to work. Templer, Armstrong-Stassen and Cattaneo (2010) stated in their research that the following motives -financial motives, opportunities to transfer knowledge, expertise and experience to younger generations, and working as an important aspect of life- were indicated as important influences for the older workers' decision to continue to work.

The relationship between job performance and motivation to continue to work turned out to be positive and significant. Former research findings also indicated that there exists a positive relationship between job performance and motivation to continue to work (Hausknecht et al., 2009; Ng & Feldman, 2008). The relationship between job performance and motivation to continue to work can be explained according to the job performance and job satisfaction relationship (Christen et al., 2006; Judge et al., 2001; Petty et al., 1984). This relationship implies that performance leads to valued outcomes that are satisfying for workers, what leads to satisfaction with their job and job satisfaction leads to more motivation to continue to work.

The results showed that only the cognitive demanding job type moderated the relationship between accommodative practices and job performance negative and significant. This means that the relationship between accommodative practices and job performance declines when the cognitive demands of the job are high. Expected was that there would be a positive relationship between HR bundles and job performance moderated by job type. A possible explanation for this negative relationship is that workers might be afraid that the accommodative practices reduce their time to fulfill their tasks. Accommodative practices are aimed at reducing the time at work, for example additional leave, this might cause that workers belief that they have to work harder to complete all their tasks since they have less time to do their job.

An explanation for the non-significant relationships between HR bundles and job performance moderated by job type is that the JD-R model served as a model to explain the relationship between HR bundles and job performance moderated by job type. However, the JD-R model is based on the assumptions that job demands are the most important predictors of in-role performance, and job resources are the most important predictors of extra-role performance. In this study the focus was on task performance and in-role or extra- role performance were not measured.

Moreover, the buffer function in the JD-R model was used to explain that job resources, the HR bundles, could buffer the impact of job demands on the job performance of older workers. The results showed that the HR practices did not buffer the impact for older workers. In the study of Bakker et al. (2004) the buffer function of job resources was also not found significant. Their explanation for the outcome was that only several different job resources can buffer for several different job demands. The job resources serving as buffer depends for a great part on the type of job position and specific job characteristics. This could also be applied to the findings of this study, the impact of certain job demands could not be buffered by the perceived availability of HR practices. It is possible that certain HR practices can be used to reduce certain job demands, but could not serve as buffer for the impact of job demands on the performance of older workers.

Furthermore, the variable job type was divided into cognitive and physical demanding jobs. In the groups of cognitive and physical demands was a division made between high and low demands based on the median. Since the amount of high physical demanding jobs in the sample was small and the amount of high cognitive demanding jobs was high. This division based on the median instead of the mean scores on the scales, could have caused that some of the respondents were divided in the wrong group of high or low demands. This might had consequences for the relationships between the HR bundles and job performance moderated by job type.

The scales which measured the cognitive and physical demands were used in many other studies (Janssen, 2001; Hulsker, 2006; Bakker et al. 2004). However, it can be argued that the scales might not cover all the aspects of the job which makes a job physical or cognitive high demanding. The scales which measured the cognitive and physical demands both had seven questions to measure the demands. It is probable very hard to measure all the demands of the job with these few questions. Besides, some workers might view their job as high cognitive or physical demanding while a colleague views the same job as low cognitive or physical demanding. Also, the 4-point based response scale rated from never to always, is not clear about the demands on a weekly or daily basis. Some respondents might associate something what happens on a weekly basis with 'always' while other respondents might associate 'always' with daily experiences.

Finally, the age when a worker can be defined as an older worker can be determined with different approaches. In this study the career stage model was used to classify the age group of older workers in line with former research (e.g. Conway, 2004; Finegold et al., 2002; Robson et al., 2006). However, the cut-off age of 41 years and older might not be a good reflection of the group of older workers (Conway, 2004). Many researchers argued that 50 years and older represent the age group of older employees (Sterns & Miklos, 1995; Mital, 1994; Gardiner et al., 2007). Templer et al. (2010) even stated that the group of older employees should not be treated as a homogeneous group. Older workers vary in their experiences of age-related changes in physical and cognitive abilities and their benefit from employers' interventions, like HR practices (Hansson, de Koekoek, Neece & Patterson, 1997). It might be that age alone is not enough to define the older worker, perhaps more age-related changes should be taken into account with defining the older worker and to differentiate between the older workers.

5.2. Limitations

This study contains some limitations. Despite the effort, the size of the sample was average. Organizations were not willing to participate in this study due to the financial crisis. Organizations did

not want their employees to invest time in filling in a questionnaire which they could invest in their work. The size of the sample is probably a reason for the non-significant results (Pallant, 2007).

A second limitation is the snowball sampling method. The respondents were not randomly selected. Not everyone in the population had the chance to join the sample, since only the direct social network of the researcher was approached. Moreover, this study had a cross sectional design, this means that the independent and dependent variable were measured at the same time. Therefore, no causal relationships between the variables could be investigated. If a longitudinal research design was used the causality between the variables could have been investigated.

Furthermore, self reported data was used, this kind of measurement is not an objective measure. For measuring the perceived availability of HR practices, a five-point response scale was used. This could caused response bias, when respondents feel happy about their organization they probably rate the perceived availability of HR practices higher, compared to the actual perceived availability of HR practices. Another limitation of this study is the amount of high and low demanding job types. The amount of high physical demanding jobs was low and the amount of high cognitive demanding jobs was high. This might influenced the moderating effect of job type.

Moreover, the education level of the respondents was not measured in this study. Instead the function level was measured based on level and requirement of skills (CBS, 2001). However, the function level might not reflect correctly the education level of the respondents. A final limitation of this study is that only respondents of 41 years and older were included in the sample. Maybe it would be better to include respondents from different age groups in the sample to make better comparisons and find actual differences for employees older than 40 years.

5.3. *Practical and theoretical implications*

Despite the limitations, this study has also some practical implications. First, it is important for organizations to offer development practices to older workers since it motivates them to continue to work. Also, a valuable lesson for the HR departments and managers is that health influences the job performance of employees with the age of 41 years and older. It is important that older employees stay healthy and therefore, promoting health related behaviors. The Dutch government is debating about which jobs should be defined as high demanding jobs. It turned out that the perceived availability of HR practices had no influence on the job performance of older workers, regardless the high cognitive or physical demands of the job.

This study has also some theoretical implications and one of them is that there is little research evidence with samples specified at the age group of 41 years and older. Moreover, the AMO

theory was never before applied to workers with the age of 41 years and older. This study indicates that this theory was not appropriate for older employees. Furthermore, the SET was applied in this research and confirmed earlier research findings (Armstrong-Stassen & Ursel, 2009). Older employees need to feel recognized and valued by their organization to be motivated to continue to work. Furthermore, this study contributed to the expansion of the existing literature by using job type as moderator on the relationship between HR bundles and job performance. This also applies for job performance as mediator on the relationship between HR bundles and motivation to continue to work for older employees. There was no former research evidence of job type as moderator and job performance as mediator in research settings specified at older workers.

5.4. Recommendations for future research

In the research area related to the aging workforce, there is still a lot to discover for future researchers. It is important to carry out more research in this area since many populations around the world are aging. One recommendation from this study is that a larger sample is necessary to find actual significant relationships and for making generalizations to the population. Furthermore, a longitudinal research design should be used to study the causal relationship between the variables.

There was no former research evidence about job performance as mediating variable between the relationship of HR bundles and motivation to continue to work, more research is needed to confirm or rejects the findings in this study. This also applies for job type as moderator between the relationship of bundles of HR practices and job performance. Also, for measuring job type it is necessary to have an equal division in high and low cognitive and physical demanding job types. The former research evidence about the relationship between age and job performance is blended. It may be useful to do more research with these variables in relationship with other variables, such as health, so it becomes more clear what influences the job performance of older employees.

Furthermore, the older worker was defined according to the career stage model, future research should focus more on the different approaches for defining the older worker, so it becomes clear which approach is the best approach for defining the older worker. Finally, future research should focus on the combined positive synergistic effect of the bundles of HR practices.

The aging workforce is an emerging topic in research and in real life and it is therefore important to have more empirical evidence about how aging affects the performance and motivation to continue to work of workers.

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Appendix

Appendix A

HR bundles

HR bundles
<u>Development</u> 1- Career planning 2- Continuous on-the-job development 3- Regular training 4- Promotion
<u>Maintenance</u> 1. Flexible benefits 2. Ergonomic adjustment 3. Performance pay 4. Compressed working week 5. Performance appraisal
<u>Utilization</u> 1. Participation 2. Task enrichment (knowledge transfer) 3. Reduced workload 4. Sideways jobs movement 5. Second career
<u>Accommodative</u> 1. Additional leave 2. Long career break 3. Early retirement 4. Demotion 5. Exemption from overtime working 6. Part-time work/ semi retirement

Onderzoek Universiteit van Tilburg

Beste lezer,

Ik ben een student aan de universiteit van Tilburg en volg de Master Human Resource Studies. Momenteel ben ik druk bezig met mijn thesis en richt mijn onderzoek op de mensen die langer moeten gaan doorwerken in verband met de vergrijzing in Nederland.

Met mijn onderzoek wil ik laten zien dat oudere mensen andere behoeften hebben qua regelingen en personeelswerk- instrumenten. Zodat werkgevers in de nabije toekomst de mensen die langer moeten gaan doorwerken beter kunnen motiveren en tegemoetkomen met behulp van regelingen en personeelswerk- instrumenten.

Ik wil u dan ook verzoeken om mijn vragenlijst in te vullen, want uw mening is van groot belang. Het neemt maximaal 10 minuten van uw tijd in beslag.

Via onderstaande link komt uw op de website van de vragenlijst:

www.thesistools.com/web/?id=141528

Met vriendelijke groet,

Sabine Fens

Onderzoek Universiteit van Tilburg

De vragenlijst gaat over het personeelsbeleid van uw organisatie en over uw organisatie in het algemeen. Er wordt gevraagd naar uw mening over de relatie tussen u en uw werkgever, vanuit het perspectief van uw huidige functie.

Bij elke blok vragen staat een korte instructie voor het invullen hiervan. Het is belangrijk dat u bij elke vraag het antwoord kiest dat het dichtste bij uw eigen mening ligt. We willen u verzoeken bij iedere vraag een antwoord in te vullen.

Uw gegevens zullen uiteraard anoniem en vertrouwelijk behandeld worden, ze zullen niet gebruikt worden voor andere doeleinden dan de verwerking van deze vragenlijst voor bovengenoemd onderzoek. Het invullen van deze vragenlijst zal ongeveer 10 minuten van uw tijd in beslag nemen.

-
- 1. Hieronder staan verschillende personeelsregelingen, -instrumenten en mogelijkheden die onderdeel uit kunnen maken van het personeelsbeleid van uw organisatie. Er wordt u gevraagd om aan te geven in hoeverre uw organisatie deze zaken aan u biedt. Kies het antwoord dat u het best vindt passen.**

	Totaal niet	Enigszins	In redelijke mate	Voor een groot deel	Volkomen
De mogelijkheid om parttime te werken	☐	☐	☐	☐	☐
Een 4 x 9 werkweek (ingekorte werkweek)	☐	☐	☐	☐	☐
Flexibele werk (begin- en eind) tijden	☐	☐	☐	☐	☐
De mogelijkheid om thuis te werken	☐	☐	☐	☐	☐
Extra verlof / vakantie (bijvoorbeeld leeftijdsdagen of -uren)	☐	☐	☐	☐	☐
Vrijstelling van werken tijdens onregelmatige uren, overwerk etc.	☐	☐	☐	☐	☐
OBU / flex-pensioen (vervroegd met pensioen)	☐	☐	☐	☐	☐
Deeltijd pensioen	☐	☐	☐	☐	☐
De mogelijkheid voor een langdurige loopbaanonderbreking	☐	☐	☐	☐	☐

Een beloning die afhankelijk is van mijn prestaties	☐	☐	☐	☐	☐
Flexibele arbeidsvoorwaarden (bijv. mogelijkheid om vakantiedagen te kopen of verkopen)	☐	☐	☐	☐	☐
Aangepaste arbeidsomstandigheden (bijv. aangepaste werkplek)	☐	☐	☐	☐	☐
Functionerings- en/of beoordelingsgesprek (minimaal een keer per jaar)	☐	☐	☐	☐	☐
Coaching gericht op mijn ontwikkeling (loopbaanbegeleiding)	☐	☐	☐	☐	☐
De mogelijkheid om nieuwe kennis en vaardigheden te ontwikkelen voor mijn huidige of toekomstige baan.	☐	☐	☐	☐	☐
De mogelijkheid om me permanent te ontwikkelen in mijn functie	☐	☐	☐	☐	☐
De mogelijkheid om regelmatig trainingen of cursussen (minimaal een keer per jaar) te volgen	☐	☐	☐	☐	☐
De mogelijkheid om door te groeien naar een hogere functie binnen de organisatie	☐	☐	☐	☐	☐
De mogelijkheid om een stapje terug te doen (demotie, functieverlaging)	☐	☐	☐	☐	☐
De mogelijkheid om een andere functie op hetzelfde niveau als mijn huidige functie te vervullen op dezelfde of een andere afdeling	☐	☐	☐	☐	☐
De mogelijkheid om de taken binnen mijn functie uit te breiden (bijvoorbeeld met kennisoverdracht)	☐	☐	☐	☐	☐
De mogelijkheid om belastende taken uit het takenpakket van mijn functie te halen	☐	☐	☐	☐	☐
Start nieuwe loopbaan (en dus omscholing) binnen de organisatie	☐	☐	☐	☐	☐
De mogelijkheid om betrokken te zijn bij de besluitvorming in de organisatie	☐	☐	☐	☐	☐

2. Onderstaande vragen betreffen de functie waarin u op dit moment werkzaam bent. Kunt u aangeven in welke mate deze vragen op u van toepassing zijn?

	Nooit	Soms	Vaak	Altijd
Vraagt uw werk veel concentratie?	☐	☐	☐	☐
Moet u erg precies werken?	☐	☐	☐	☐
Moet u op veel dingen tegelijk letten tijdens uw werk?	☐	☐	☐	☐
Vereist uw werk dat u er steeds bij moet nadenken?	☐	☐	☐	☐
Vereist uw werk dat u er voortdurend uw aandacht bij moet houden?	☐	☐	☐	☐
Moet u in uw werk veel onthouden?	☐	☐	☐	☐
Vereist uw werk grote zorgvuldigheid?	☐	☐	☐	☐
Heeft u tijdens het werk veel hinder van tillen of sjouwen?	☐	☐	☐	☐
Heeft u tijdens het werk veel hinder van regelmatig te moeten bukken?	☐	☐	☐	☐
Heeft u tijdens het werk veel hinder van regelmatig te hoog moeten reiken?	☐	☐	☐	☐
Heeft u tijdens het werk veel hinder van langdurig achtereen steeds dezelfde beweging te moeten maken?	☐	☐	☐	☐
Vindt u uw werk lichamelijk erg inspannend?	☐	☐	☐	☐
Vereist uw werk lichaamskracht?	☐	☐	☐	☐
Werkt u in ongemakkelijke of inspannende houdingen?	☐	☐	☐	☐

3. De onderstaande vragen betreffen uw persoonlijk functioneren. U wordt verzocht per vraag aan te geven in hoeverre deze voor u van toepassing is.

	Onder het gemiddelde	Gemiddeld	Boven gemiddeld	Ver boven gemiddeld	Als een van de best
Hoe zo u uw huidig functioneren over het algemeen beoordelen?	☐	☐	☐	☐	☐
Hoe denkt u dat uw direct leidinggevende uw huidig functioneren over het algemeen zou	☐	☐	☐	☐	☐

beoordelen?

Hoe denkt u dat uw collega's uw
huidig functioneren over het
algemeen zouden beoordelen?

☐	☐	☐	☐	☐
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4. Kunt u aangeven in hoeverre u het eens bent met onderstaande stellingen?

	Volstrekt mee oneens	Enigszins mee oneens	Mee oneens	Neutraal	Enigszins mee eens	Volkomen mee eens
Onvoorziene omstandigheden buiten beschouwing latend, wil ik bij deze organisatie blijven.	☐	☐	☐	☐	☐	☐
Als ik helemaal vrij was om te kiezen, zou mijn voorkeur uitgaan om binnen deze organisatie te blijven werken.	☐	☐	☐	☐	☐	☐
Ik verwacht om bij deze organisatie te blijven werken voor zolang het mogelijk is.	☐	☐	☐	☐	☐	☐

Tot slot willen ik u nog verzoeken om onderstaande algemene vragen in te vullen.

5. Wat is uw leeftijd?

6. Wat is uw geslacht?

- ☐ Man
☐ Vrouw

7. Welk cijfer zou u zichzelf geven om uw gezondheid te waarderen?

(0= zeer slecht - 10= uitstekend)

8. Hoeveel mensen zijn er binnen uw organisatie werkzaam?

(dit mag een schatting zijn)

9. Hoelang bent uw werkzaam binnen deze organisatie?

Maanden

Jaren

10. Wat is uw huidige functie?

11. In welke branche bevindt uw organisatie zich?

- ☐ Energie
- ☐ Financiële instellingen
- ☐ Delfstoffenwinning
- ☐ Zakelijke dienstverlening
- ☐ Gezondheids- en welzijnszorg
- ☐ Onderwijs
- ☐ Milieudienstverlening, cultuur en recreatie
- ☐ Visserij
- ☐ Horeca
- ☐ Vervoer, opslag en communicatie
- ☐ Bouwnijverheid
- ☐ Reparatie en handel
- ☐ Industrie
- ☐ Landbouw
- ☐ Overheid en openbaar bestuur

Dit is het einde van de vragenlijst. Ik wil u hartelijk bedanken voor het invullen van de vragen. Mocht u nog vragen of opmerkingen hebben dan kunt u mailen naar het volgende email adres: S.A.M.Fens@uvt.nl

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,859
Bartlett's Test of Sphericity	Approx. Chi-Square	1598,970
	df	276
	Sig.	,000

Communalities

	Initial	Extraction
Parttime	1,000	,594
Een_4_x_9_werkwerk	1,000	,718
Flex_begin_eindtijden	1,000	,703
Thuiswerken	1,000	,829
Extra_verlof_vakantiedagen	1,000	,650
Vrijstelling_werk_onregelmatig_uren	1,000	,644
OBU_flexpensioen	1,000	,785
Deeltijd_pensioen	1,000	,752
Langdurige_loopbaanonderbreking	1,000	,526
Prestatie_beloning	1,000	,665
Flexibele_arbeidsvw	1,000	,777
Aangepaste_arbeidsomstandigheden	1,000	,570
Functionerings_enof_beoordelingsgesprek	1,000	,526
Coaching_ontwikkeling_loopbaanbegeleiding	1,000	,704
Nieuwe_kennis_vaardigheden	1,000	,826
Permanent_ontwikkelen	1,000	,843
Trainingen_cursussen	1,000	,715
Doorgroeien_hogere_functie	1,000	,673
Demotie	1,000	,597
Horizontale_doorstroom	1,000	,606
Taken_functie_uit_te_breiden	1,000	,702
Belastende_taken_uit_het_takenpakket	1,000	,681
Nieuwe_loopbaan	1,000	,730
Betrokken_besluitvorming	1,000	,577

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8,834	36,807	36,807	8,834	36,807	36,807
2	1,992	8,301	45,108	1,992	8,301	45,108
3	1,714	7,142	52,250	1,714	7,142	52,250
4	1,494	6,224	58,474	1,494	6,224	58,474
5	1,240	5,167	63,641	1,240	5,167	63,641
6	1,120	4,665	68,306	1,120	4,665	68,306
7	,868	3,616	71,922			
8	,777	3,239	75,161			
9	,731	3,046	78,208			
10	,648	2,700	80,908			
11	,552	2,301	83,209			
12	,504	2,101	85,310			
13	,485	2,022	87,331			
14	,461	1,920	89,252			
15	,404	1,684	90,935			
16	,386	1,607	92,542			
17	,331	1,380	93,922			
18	,296	1,233	95,155			
19	,275	1,146	96,301			
20	,240	1,001	97,302			
21	,224	,933	98,234			
22	,172	,718	98,953			
23	,152	,635	99,588			
24	,099	,412	100,000			

Extraction Method: Principal Component Analysis.

Pattern Matrix^a

	Component					
	1	2	3	4	5	6
Functionerings_enof_ beoordelingsgesprek	,706					
Coaching_ontwikkeling_ loopbaanbegeleiding	,767					
Nieuwe kennis_ vaardigheden	,876					
Permanent_ontwikkelen	,877					
Trainingen_cursussen	,759					
Doorgroeien_hogere_ functie	,579		,310			
Nieuwe_loopbaan	,441		,376			-,333
OBU_flexpensioen		,870				
Deeltijd_pensioen		,830				
Langdurige_ loopbaanonderbreking		,367				
Parttime			,642			
Demotie			,698			
Horizontale_doorstroom			,579			
Taken_functie_uit_te_ breiden			,581			
Belastende_taken_uit_ het_takenpakket			,750			
Flex_begin_eindtijden				,674		-,393
Thuiswerken				,907		
Extra_verlof_ vakantiedagen					-,718	
Vrijstelling_werk_ onregelmatig_uren					-,682	
Prestatie_beloning					-,739	
Flexibele_arbeidsvw	,302		-,306		-,737	
Aangepaste_ arbeidsomstandigheden				,341	-,496	
Een_4_x_9_werkwerk						-,710
Betrokken_besluitvorming						,353

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 37 iterations.

Appendix D Outcome post hoc analysis health

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,148 ^a	,022	-,011	,68974
2	,343 ^b	,117	,064	,66372
3	,409 ^c	,167	,085	,65621

a. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization

b. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization, Gender, Health, Type_of _organisation

c. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization, Gender, Health, Type_of _organisation, Maint.health, Util.health, Acco.health, Dev.health

ANOVA^d

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,262	4	,315	,663	,619 ^a
	Residual	56,138	118	,476		
	Total	57,400	122			
2	Regression	6,740	7	,963	2,186	,040 ^b
	Residual	50,661	115	,441		
	Total	57,400	122			
3	Regression	9,602	11	,873	2,027	,032 ^c
	Residual	47,798	111	,431		
	Total	57,400	122			

a. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization

b. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization, Gender, Health, Type_of _organisation

c. Predictors: (Constant), Accomodative, Development, Maintenance, Utilization, Gender, Health, Type_of _organisation, Maint.health, Util.health, Acco.health, Dev.health

d. Dependent Variable: Job.performance

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,656	,244		10,896	,000
	Development	,066	,095	,098	,691	,491
	Maintenance	,119	,117	,131	1,019	,310
	Utilization	-,028	,113	-,036	-,244	,808
	Accomodative	-,064	,104	-,075	-,620	,537
2	(Constant)	1,670	,399		4,183	,000
	Development	,041	,092	,060	,443	,659
	Maintenance	,119	,113	,131	1,054	,294
	Utilization	-,017	,110	-,021	-,150	,881
	Accomodative	-,097	,105	-,114	-,928	,356
	Health	,120	,044	,245	2,704	,008
	Gender	,275	,131	,187	2,094	,038
	Type_of_organisation	,009	,094	,008	,090	,928
3	(Constant)	1,654	,436		3,798	,000
	Development	,120	,099	,178	1,210	,229
	Maintenance	,153	,114	,169	1,344	,182
	Utilization	-,047	,115	-,062	-,410	,683
	Accomodative	-,162	,107	-,191	-1,514	,133
	Health	,112	,050	,230	2,227	,028
	Gender	,292	,132	,199	2,215	,029
	Type_of_organisation	,008	,094	,008	,085	,933
	Dev.health	-,274	,123	-,408	-2,230	,028
	Maint.health	-,059	,092	-,077	-,639	,524
	Util.health	,103	,081	,157	1,272	,206
	Acco.health	,155	,097	,257	1,602	,112

a. Dependent Variable: Job.performance

